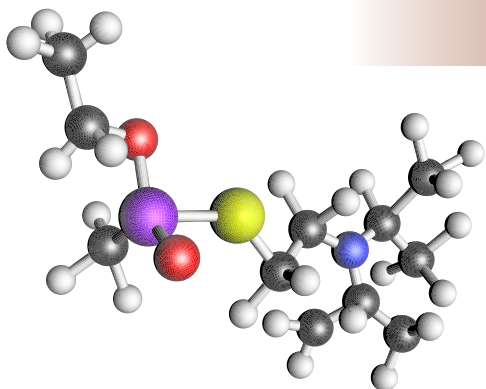


VX: One of the Most Toxic Nerve Agents



VX ($C_{11}H_{26}NO_2PS$), a chemical nerve agent, paralyzes the nervous system. It is more toxic and longer-lived than related nerve agents Tabun and Sarin, which dissipate quickly and have only short-term effects. VX binds to an enzyme that transmits signals to the nerves and inhibits them. As a result, the nerves become isolated and uncontrollable.

The antidote, **atropine**, is a toxin itself but counteracts VX by removing it from the enzyme. Atropine is normally injected into the arm or thigh; in the case of gas attacks, however, atropine must be injected directly into the heart. Full body protection and gas masks are essential to avoid exposure in a VX attack.



Medical Symptoms of Exposure to Nerve Agents

Method	Onset	Symptoms
Dermal exposure to liquid	Minutes to hours	<p>Mild Exposure: Increased sweating at the site of exposure; muscular twitching at site</p> <p>Moderate Exposure: Same as above plus nausea, vomiting, diarrhea, generalized weakness</p> <p>Severe Exposure: Same as above plus loss of consciousness, convulsions, generalized twitching, flaccid paralysis, lapses in breathing, generalized secretions, involuntary defecation</p>
Exposure to vapor	Seconds	<p>Mild Exposure: Small pupils, runny nose, breathing constriction, secretions, slight lapses in breathing</p> <p>Moderate Exposure: Small pupils, runny nose, breathing constriction, secretions, marked lapses in breathing</p> <p>Severe Exposure: Same as above plus loss of consciousness, convulsions, generalized twitching, flaccid paralysis, lapses in breathing, generalized secretions, involuntary defecation</p>